

Abstract Submitted  
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**SAXS/WAXS studies of flow-induced crystallization of poly(1-butene) in shear flow** BINBIN LUO, WESLEY BURGHARDT, Northwestern University — Flow-induced crystallization of poly(1-butene) was studied in shear flow. Flow was produced using a Linkam shear cell that has been modified to allow x-ray access for in situ studies of polymer structure using synchrotron x-ray scattering techniques. After loading in the the shear cell, samples were first heated well into the melt, and then cooled to a crystallization temperature selected such that negligible quiescent crystallization would occur on reasonable time scales. A short burst of shear flow was then applied at various rates, after which simultaneous wide- and small-angle x-ray scattering (SAXS and WAXS) data were collected to study the resulting accelerated crystallization kinetics, as well as the morphology of the resulting crystallites (e.g. degree of crystallite orientation). The impact of both deformation rate and total applied strain on the crystallization process were examined.

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